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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/755,437	01/05/2001	Richard L. McCreery	OSU1159-141	5136

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IP DEPARTMENT OF PIPER RUDNICK LLP  
3400 TWO LOGAN SQUARE  
18TH AND ARCH STREETS  
PHILADELPHIA, PA 19103

EXAMINER

ZACHARIA, RAMSEY E

ART UNIT PAPER NUMBER

1773

DATE MAILED: 02/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/755,437

Applicant(s)

MCCREERY, RICHARD L.

Examiner

Ramsey Zacharia

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 11 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-18 and 44-46 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 and 44-46 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 January 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)

Paper No(s)/Mail Date 2/11/01; 10/15/03

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

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## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: **38** in Figure 13. A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Specification***

2. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 8, 13, 14, and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Hamers et al. (U.S. Patent 5,908,692).

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Hamers et al. teach an organic monolayer attached to a substrate by means of an addition reaction (column 2, lines 16-24). The reaction may be a 2+2 cycloaddition, i.e. a reaction that forms new  $\pi$ , or conjugated, bonds, with the resulting layer molecularly oriented (column 4, lines 11-29). The monolayer may comprise molecular units having of the same type having the same length (see Figure 2B) or two types of molecules having different lengths (see Figure 2A) that are in both cases oriented such that they are substantially parallel (column 6, lines 12-27). The coated substrate may be used in electronic circuits (column 10, lines 3-7). This reads on the limitations of claim 18 since an electronic circuit must comprise a source of electrical current at least some of which would be expected to pass through the monolayer.

5. Claims 8-11, 13, and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Weaver et al. (U.S. Patent 5,208,154).

Weaver et al. teach an electrode having a surface treated with an electrochemically active material that is then connected to an electrical source to allow charged particles to adsorb onto the treated surface (column 2, lines 24-35). The electrochemically active material extend out from the electrode in a substantially parallel manner (Figures 1 and 2). A preferred material for the electrode is conductive carbon (column 3, lines 57-59). Quinone, i.e.  $O=C_6H_4=O$ , is a suitable electrochemically active material (claim 1). Since all the bonds in quinone are conjugated, the bond through which it is attached to the surface must be conjugated.

Regarding claim 11, the term "pyrolyzed" is taken to be a process-related limitation indicating the manner in which the conductive carbon is formed. Since the determination of patentability for a product claim containing process limitations is based on the product itself and

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not on the method of production, the conductive carbon electrode of Weaver et al. reads on the substrate of claim 11.

***Claim Rejections - 35 USC § 102 / 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-3, 7, 12, 15-17, 44, and 45 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Hamers et al. (U.S. Patent 5,908,692).

Hamers et al. teach all the limitations of claims 1-3, 7, 12, 15-17, 44, and 45, as outlined above, except that Hamers et al. is silent as to the roughness of the silicon surface on which the monolayer is formed.

However Hamers et al. teach that the silicon used is Si(001) with a clean, well ordered surface (column 7, lines 21-25). A clean and well ordered surface of Si(001) would be expected to inherently have a roughness on the order of the Si-Si bond length, about 235 pm or 2.35 Å.

In the event that the surface does not inherently have such a roughness, it would be obvious to one of ordinary skill to ensure that the surface is as clean and well ordered as possible, since Hamers et al. teach that the surface should be clean and well ordered.

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***Claim Rejections - 35 USC § 103***

8. Claims 1, 2, 4-7, 12, 15-17, and 44-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weaver et al. (U.S. Patent 5,208,154) in view of Wegner et al. (U.S. Patent 4,828,917).

Weaver et al. teach all the limitations of claims 1, 2, 4-7, 12, 15-17, and 44-46, as outlined above, except for requiring the substrate to have a roughness less than or equal to the average length of the electrochemically active material and less than 5 Å.

Wegner et al. disclose that when forming a monolayer on a substrate it is known make the substrate smooth to allow for the formation of a well defined layer (column 4, lines 35-38).

One of ordinary skill in the art would be motivated to make the electrode surface of Weaver et al. as smooth as possible to ensure that the layer of electrochemically active material applied to the surface is well defined.

***Double Patenting***

9. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

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Claims 1-18 and 44-46 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 7-11, 16, 22-30, and 56-58 of copending Application No. 10/376,865. Although the conflicting claims are not identical, they are not patentably distinct from each other because the inventions of instant claims 1-18 and 44-46 represent a genus of which the inventions described by claims 1, 7-11, 16, 22-30, and 56-58 of copending Application No. 10/376,865 are species. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993). The instant monolayer material is generic to monolayer construction of copending Application No. 10/376,865. Therefore, 1, 7-11, 16, 22-30, and 56-58 of copending Application No. 10/376,865 represent a species of instant claims 1-18 and 44-46.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

### ***Conclusion***

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ramsey Zacharia whose telephone number is (571) 272-1518. The examiner can normally be reached on Monday through Friday from 9 to 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Thibodeau, can be reached on (571) 272-1516. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

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applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



**Ramsey Zacharia**  
**Primary Examiner**  
**Tech Center 1700**